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Gracenote, Inc. Ref. No.: PHNL010110-US

ALLOWED CLAIMS

GENERATING AND MATCHING HASHES OF MULTIMEDIA CONTENT
Applicant: Jaap A. Haitsma et al.
Serial No: 10/073,772

Claims 3-10, 18-20, and 26-28 as allowed on February 28, 2007.

3. The method as claimed in claim 27, wherein the property of a neighboring band or block constitutes said threshold.

4. The method as claimed in claim 27, wherein the property of a corresponding band or block in a previous frame constitutes said threshold.

5. The method as claimed in claim 27, wherein the bands or blocks are frequency bands of the frequency spectrum of the respective frame of the unidentified information signal.

6. The method as claimed in claim 5, wherein the frequency bands have an increasing bandwidth as a function of the frequency.

7. The method as claimed in claim 5, wherein said property is the energy of a frequency band.

8. The method as claimed in claim 5, wherein said property is the tonality of a frequency band.

9. The method of claim 26, wherein the dividing of the unidentified information signal into frames includes dividing the unidentified information signal into overlapping frames.

10. The method as claimed in claim 27, wherein the unidentified information signal is a video signal, the frames of which are divided into blocks, the mean luminance of a block constituting the property of said block.

18. A method to match a hash value representing an unidentified information signal with a plurality of hash values stored in a database and to identify a respective one of a plurality of information signals, the method comprising:

receiving said hash value in the form of a plurality of reliable hash bits and unreliable hash bits;

searching in the database the stored hash values for which holds that the reliable bits of the applied hash value match the corresponding bits of the stored hash value while ignoring unreliable bits of the applied hash value and corresponding bits of the stored hash value;

for each stored hash value found in response to the searching ~~step (b)~~, calculating the bit error rate between the reliable bits of the hash value representing the unidentified information signal and the corresponding bits of the stored hash value;

determining for which stored hash values the bit error rate is minimal; and

returning an identification of the respective one of the plurality of information signals that corresponds to the minimal bit error rate.

19. A method to match a hash signal representing an unidentified information signal with a plurality of hash signals stored in a database and to identify a respective one of a plurality of information signals, the method comprising:

receiving said hash signal in the form of a series of hash values, each hash value having reliable hash bits and unreliable hash bits;

applying one of the hash values of said series to the database;

searching in the database the stored hash values for which holds that the reliable bits of the applied hash value match the corresponding bits of the stored hash value while ignoring unreliable bits of the applied hash value and corresponding bits of the stored hash value;

for each stored hash value found in response to the searching:

selecting in the database the corresponding series of stored hash values;

calculating the bit error rate between the reliable bits of the series of hash values representing the unidentified information signal and the corresponding bits of the selected series of hash values in the database while ignoring unreliable bits of the series of hash values and corresponding bits of the selected series of hash values in the database; and

determining for which series of stored hash values the bit error rate is minimal; and

returning an identification of the respective one of the plurality of information signals that corresponds to the minimal bit error rate.

20. The method as claimed in claim 19, further comprising repeating the applying, searching, selecting, calculating, determining and returning for other hash values of the unidentified information signal until a series of stored hash values is found for which the bit error rate is minimal, wherein the returning returns the identification of the respective one of the plurality of information signals that corresponds to this minimal bit error rate.

26. The method of claim 18, further comprising generating the hash value, the generating of the hash value comprising:

dividing the unidentified information signal into frames;

computing a hash word for each frame; and

concatenating successive hash words to constitute the hash value.

27. The method of claim 26, wherein the computing of a hash word for each frame includes:

dividing each frame of the information signal into one of bands or blocks;

calculating a property of the signal in each of said bands or blocks;

comparing the properties in the bands or blocks with respective thresholds; and

generating respective bits of the hash word based on the results of said comparisons.

28. The method as claimed in claim 18, wherein the unidentified information signal is an audio signal.